

# Opening Comments

2021/07/14

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# WG Objectives

- The discovery of the 125 GeV Higgs boson at LHC has vaulted the question of its properties on the top of the list of questions in HEP. The 125GeV boson is a window to BSM physics and ILC is an ideal machine to use it.

So far no “definite” signs of additional new particles or new phenomena have been reported, suggesting that there seem to be no easily discoverable new particles. This situation enhanced the importance of the precision measurements of H125 and loophole-less searches at ILC more than ever. There can be a zoo of new uncolored particles or new phenomena in the blind spots of LHC but can be discovered and studied in detail at ILC. We also need to further investigate what the ILC’s precision will imply in terms of BSM physics searches and identifications.

We need to demonstrate that ILC will advance our understanding of particle physics qualitatively beyond the information that will be available from the results expected from various experiments but the time of the first collision at the ILC. We hence need to closely monitor, analyze, and examine developments of LHC and other experiments.

- With the strong support from the U.S. and favorable mention of ILC in a draft European Particle Physics Strategy Update 2020, LCB/ICFA met on Feb. 20, 2020 at SLAC together with a MEXT representative and a key diet member from Japan, and made a statement outlining the timeline towards ILC realization including International Development Team (IDT) hosted at KEK. IDT was established on Aug.2, 2020. After 10 months of hard work the IDT completed its Pre-lab proposal and submitted it to MEXT on June 2, 2021, which is to be evaluated by MEXT.

We need to show that there is a strong community supporting ILC so as to encourage decision makers to decide favorably about the Pre-Lab startup. We need to show strong presence in the Snowmass process. The next target for us to show our activities is the Fall WS on Oct. 26 to 29, 2021 at KEK.



- **The political environment about ILC is now very good, thanks to strong US support. A new deputy-MEXT minister, Ms. Takahashi, responsible for S&T policy, very supportive. Masa is talking to MEXT. With the coming 5th wave of COVID19, however, it is not a perfect time to bring up a big scientific project like ILC.**
- **The climate change: The first stage of the ILC is 250 GeV but, now studies on energy upgrade even above 1 TeV is encouraged. Discussions on non-colliding beam experiments using the ILC facility starting.**
- **Despite the COVID19 pandemic, KEK is operating in the new normal mode, and various ILC promotion activities are on-going. The KEK PIP process started.**
- **JAHEP ILC Steering Panel was established on Oct.28, 2020 to lead the HEP community in Japan to advance the ILC project towards its timely realization.**
  - **Background briefing to media, explanation to other fields, on going.**
  - **An X+ILC series of informal talks on going to involve new comers (7 times).**
- **The International Development Team (IDT):**
  - **Working on Snowmass process to expand the ILC community.**
  - **Pre-Lab proposal published and submitted to MEXT together with a report on remaining issues pointed out by the MEXT panel and the SCJ committee. Budget request to launch Pre-Lab would have to wait successful completion of their official review process by MEXT.**
- **Tohoku upgraded its ILC promotion organization, Tohoku ILC Project Development Center, on Aug.6, 2020.**
  - **Now actively promoting ILC, including English translation of CFS related documents, etc.**

# ***IDT Phys/Det WG (WG3)***

<https://linearcollider.org/team/wg3/>

***WG3 Meeting every two weeks (last one on July 6)***

- ***Pre-lab budget request situation***
- ***The fall WS preparation status***
- ***Subgroup reports***

# Plan-A (hybrid) & Plan-B (full-online)

	Day 1 (Tue) 26 Oct	Day 2 (Wed) 27 Oct	Day 3 (Thu) 28 Oct	Day 4 (Fri) 29 Oct
13:00 - 15:00	Parallel (max. 6 sessions)	Parallel (max. 6 sessions)	Parallel (max. 6 sessions)	<b>Plenary</b> (summary session)
15:30 - 17:30	Parallel (max. 6 sessions)	Parallel (max. 6 sessions)	Parallel (max. 6 sessions)	Parallel (max. 6 sessions)
19:00 - 21:00	Parallel (max. 6 sessions)	Parallel (max. 6 sessions)	Parallel (max. 6 sessions)	<b>Plenary</b> (summary session)
21:30 - 23:30	<b>Plenary</b>	<b>Plenary</b>	<b>Plenary</b>	<b>Plenary</b> (discuss next steps)

- **Venue for Plan-A:** KEK Tsukuba campus (~30 min from hotels by bus)
- **LOC preference:** shuttle bus departure before midnight, serve lunch/dinner at KEK
- **# of plenary talks:** 20 min x 24 talks + 20 min x 12 summary talks
- **4 time slots (two hours each):** expect much more parallel talks than Plan-C (in-person)
  - 13:00-15:00 JST (6:00-8:00 CEST, 0:00-2:00 EDT, 21:00-23:00 PDT)
  - 15:30-17:30 JST (8:30-10:30 CEST, 2:30-4:30 EDT, 23:30-1:30 PDT)
  - 19:00-21:00 JST (12:00-14:00 CEST, 6:00-8:00 EDT, 3:00-5:00 PDT)
  - 21:30-23:30 JST (14:30-16:30 CEST, 8:30-10:30 EDT, 5:30-7:30 PDT)

CEST: Central European Summer Time, EDT: Eastern Daylight Time, PDT: Pacific Daylight Time
- **Optional program:**
  - In the morning: KEK facility tour, on-site satellite meetings etc.
  - On Monday (one day before Day 1): Excursion to Iwate (ILC candidate site etc.)

# Physics Potential & Opportunity Group

- continue regular open meetings (no summer break):  
**July 15, August 12, September 16**
- on every other Tuesday, discuss with TG conveners on potential contributions
- Snowmass is restarting (EF from July);  
**EF workshop Aug. 30 - Sep.3**


# Software & Computing Group

Software tutorials <https://agenda.linearcollider.org/category/273/>

WEDNESDAY, 23 JUNE


22:30 → 23:15 **The ILC DELPHES card**

Speaker: Aleksander Filip Zarniecki (University of Warsaw)

 ilc\_delphes\_tutorial...

23:15 → 00:00 **Analysis with miniDST**

Speaker: Jenny List (Deutsches Elektronen-Synchrotron (DE))

 jlist\_minIDST\_2010...

Many thanks to Filip and Jenny for excellent talks / tutorials !

~40 participants, including many new names

Next tutorial:

WEDNESDAY, 21 JULY

22:30 → 00:00 **Introduction to iLCSoft**



Speaker: Thomas Maclener (Deutsches Elektronen-Synchrotron (DE))

# Our Group's Activities



# Today

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- 10:30** → 10:50 **Opening Remarks** 🕒 20m
- 10:50** → 11:20 **Invited talk: Extra U(1) model and implication to ILC** 🕒 30m  
Speakers: Arindam Das (UA), Arindam Das  
 ADAS\_ILC2021\_Ph...
- 11:20** → 11:40 **Study of H $\gamma$ Z coupling using e $^+$ e $^-$  →  $\gamma$ H** 🕒 20m  
Speaker: Yumi Aoki (SOKENDAI,KEK)  
 2021.07.14\_genera...
- 11:40** → 13:10 **Lunch break** 🕒
- 13:10** → 13:30 **Tau reconstruction in e $^+$ e $^-$  →  $\tau^+\tau^-$  at the ILC250** 🕒 20m  
Speaker: Keita Yumino (SOKENDAI)
- 13:30** → 13:50 **Exploring Right Handed Neutrinos at ILC** 🕒 20m  
Speaker: Jurina Nakajima (SOKENDAI/KEK)
- 13:50** → 14:10 **Search of Higgs decaying to exotic scalars using kinematic fit** 🕒 20m  
Speaker: Yu Kato (University of Tokyo)
- 14:30** → 14:45 **Prospects of machine learning studies for event reconstruction** 🕒 15m  
Speaker: Taikan Suehara (Kyushu University)
- 14:45** → 15:15 **Discussions** 🕒 30m



# Short Term Schedule

- Weekly Meeting
  - Every Fri. at 14:30 (conf. ID: to be announced)
- General Meeting
  - 10:30 on **Wed. Aug .25, 2021?** (or on Saturday?)
- **Snowmass EF WS, Aug. 30 - Sep. 3, 2021**
- **ILC WS on Potential Exp., October 26-29, 2021 (Tsukuba)**
- **Snowmass Summer Study: July, 2022 (Seattle)**